

**REMARKS**

Claims 1 – 35, 37 – 46 and 54 – 57 are currently pending in the application.

Reconsideration of the rejected claims in view of the following remarks is respectfully requested.

***Allowable Subject Matter***

Applicants appreciate the indication that claims 19 – 23, 45 and 46 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants believe all the claims are in condition for allowance for the reasons set forth below.

***Replacement Drawings***

Applicants have submitted herewith replacement formal drawings. Applicants submit that the replacement drawings have been amended to more clearly depict the present invention (for example, to enlarge the text of Figures 1 and 2, and to show leader lines in Figures 11 – 13). Applicants submit that no new matter has been added.

***35 U.S.C. § 102 Rejection***

Claims 1 – 18, 24 – 35, 37 – 44 and 54 - 57 were rejected under 35 U.S.C. §102(e) for being anticipated by U. S. Patent No. 7,176,508 issued to Joshi et al. (“Joshi”). This rejection is respectfully traversed.

To anticipate a claim, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. MPEP § 2131. Applicants submit that Joshi does not constitute prior art against the instant invention.

1.131 Declaration

Under § 1.131, a rejection under 35 U.S.C. § 102(e) based on a patent or printed publication may, upon a proper showing, be overcome by removing the printed publication as a reference against the claims. As such, Applicants submit that the §1.131 Declaration submitted herewith is sufficient to overcome the §102(e) rejection. More specifically, Applicants submit that the § 1.131 Declaration is formally and substantively sufficient to establish that the Inventors had completed the invention defined in at least independent claims 1, 25, 34 and 39 (as well as the dependent claims) in the United States before the effective date of the Joshi reference, i.e., July 27, 2004.

The statements in the Declaration show that the formal requirements of §1.131 are satisfied, namely:

- (1) the rejection to be overcome is based on §102(e) prior art; and
- (2) all the acts for completing the invention of independent claims 1, 25, 34 and 39, and those claims dependent thereon, were performed in the United States.

It is respectfully submitted that the statements in the Declaration are also sufficient to satisfy the substantive requirements of 37 C.F.R. §1.131. The Declaration sets forth specific facts, of sufficient character and weight, to establish a **date of conception** before the July 27, 2004 effective date of the Joshi reference and to show that the Inventors and their attorneys exercised **due diligence** from a time before the effective filing date of the Joshi reference to a constructive reduction to practice, i.e., to the filing date of the application in the United States on September 2, 2004.

### DATE OF CONCEPTION

As stated in the Declaration, the Inventors conceived of an apparatus and method for measuring semiconductor device temperature. More specifically, the Inventors have conceived the following prior to the effective date of the Joshi reference, i.e., July 27, 2004:

1. A method of measuring performance of a device, comprising:
  - thermally coupling a first heating device to a first sensing device;
  - generating heat at the first heating device;
  - measuring a change in at least one electrical characteristic of the first sensing device caused by the heat generated at the first heating device; and
  - calculating a temperature of the first heating device using the measured change in the at least one electrical characteristic.
25. A method of measuring performance of a device, comprising:
  - thermally coupling a heating transistor to a measurement transistor at one or more predetermined distance;
  - calibrating the measurement transistor by measuring a particular electrical characteristic of an active region of the measurement transistor with the measurement transistor held at a known temperature;
  - generating heat at the heating transistor;
  - incrementally measuring a change in the at least one electrical characteristic of the measurement transistor caused by the heat generated at the heating transistor; and
  - calculating a temperature of the heating transistor using the measured change in the at least one electrical characteristic.
34. An apparatus for measuring semiconductor device temperature, comprising:

a silicon island;  
at least one pair of transistors, each pair of the at least one pair of transistors comprises a transistor configured to generate heat and a transistor configured to sense temperature;  
the transistor configured to generate heat and the transistor configured to sense temperature being arranged on the silicon island; and  
a common source contact being arranged on the silicon island and leading to the source of both the transistor configured to generate heat and the transistor configured to sense temperature,  
wherein each transistor of each pair of transistors is arranged a prescribed distance from its corresponding transistor.

39. An apparatus for measuring semiconductor device temperature, comprising:

at least one silicon island;  
at least one heating field effect transistor configurable to generate heat arranged within the silicon island;  
at least one sensing field effect transistor arranged within the at least one silicon island corresponding to each heating field effect transistor of the at least one heating field effect transistor, wherein each sensing field effect transistor is arranged a prescribed distance from its corresponding heating field effect transistor and each sensing field effect transistor is configurable to sense a temperature; and  
means to calculate a temperature of the each heating field effect transistor using a measured change in at least one electrical characteristic of the each sensing field effect transistor caused by the heat generated at the each heating field effect transistor.

An IBM Invention Disclosure with accompanying figures is submitted with the Declaration as supporting evidence of this prior date of conception. It is respectfully submitted

that the IBM Invention Disclosure with accompanying figures shows that the Inventors had a definite and permanent idea of the complete and operative invention of all the rejected claims prior to July 27, 2004, the earliest effective date of the reference.

Applicants note that the attached IBM Invention Disclosure labeled "BUR8-\_\_\_\_-0245" includes the subject matter of the invention recited in the claims of the instant application. In particular, the IBM Invention Disclosure with accompanying figures textually and pictorially shows the features of independent claims 1, 25, 34 and 39 (and the dependent claims). Applicants submit and assert that the IBM Invention Disclosure has at least one date associated therewith antedating the July 27, 2004 earliest effective date of the Joshi reference. This and all other pertinent dates have been removed from the photocopies of the IBM Invention Disclosure with accompanying figures submitted with the Declaration to prevent any potential prejudice to Applicants.

Applicants further submit that the Declaration filed herewith shows, unequivocally, that the Inventors had in their possession a definite and permanent idea of the complete and operative invention of the pending claims before July 27, 2004 in a manner sufficient to satisfy the requirements of conception, as set forth in M.P.E.P. 715.07 and 2138.04, and thus constitute *prima facie* evidence of Applicants' date of conception of the invention in this country before the earliest effective date of the reference.

### **DUE DILIGENCE**

Applicants submit that the Declaration shows the Inventors and their attorneys exercised due diligence from a time before the July 27, 2004 earliest effective date of the Joshi reference to a constructive reduction to practice, realized by the filing of the above-identified application on

September 2, 2004 in the United States. The original Invention Disclosure “BUR8-\_\_\_\_-0245” was prepared by the inventors before July 27, 2004. The invention disclosure was forwarded to outside counsel in a timely manner. Discussions between the inventors and IBM in-house counsel and the inventors and outside counsel took place until a final application was forwarded to the Inventor for execution, and subsequent filing on September 2, 2004. In particular, although communications with outside counsel and the inventors took place after the effective filing date of July 27, 2004, it is submitted that in-house IBM counsel, outside counsel and the inventors acted diligently from the time of the creation of the IBM Disclosure “BUR8-\_\_\_\_-0245” to the filing of the patent application on September 2, 2004. For example, we communicated with outside counsel in preparing this application on several occasions, including at least March 20, 2004 and dates thereafter.

Counsel acted in an expeditious manner to prepare the application for filing. Under M.P.E.P. § 2138.06, only *reasonable* diligence is required in this regard. More specifically, § 2138.06 states that a patent attorney will be held to have exercised reasonable diligence if the attorney worked reasonably hard on the application during the critical period, taking into consideration any backlog of unrelated cases the attorney may have had and his completion of those cases along with the present application in chronological order. Applicants respectfully submit that the Declaration shows that counsel acted sufficiently expeditiously to satisfy the requirements of due diligence.

Applicants submit that the Declaration submitted herewith is sufficient to show that due diligence was exercised as required under 37 C.F.R. § 1.131. The Inventors remained in regular contact with counsel to answer questions, provide technical explanation, and supply any additional information and/or clarifications necessary for allowing the application to be filed in

an expeditious manner.

Accordingly, Applicant respectfully requests that the rejection of claims 1 – 18, 24 – 35, 37 – 44 and 54 – 57 be withdrawn.

### **CONCLUSION**

In view of the foregoing remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 09-0456.

Respectfully submitted,  
Paul A. HYDE

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', written over a horizontal line.

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